<u>In the specification</u>:

Please substitute the following paragraphs for the paragraphs at the indicated locations in the specification as originally filed or most recently amended.

Paragraph 0007:

In view of the increased criticality of mask structures to the manufacture of current and foreseeable integrated circuit designs at extremely high integration densities, at least improved levels of protection of underlying structures or improved selectivity and controllability of mask removal (and preferably both) must be achieved beyond the level of performance presently available from known ~~masks~~ <u>mask</u> materials and selective processes in order to sufficiently protect underlying materials during both semiconductor manufacturing processes and the subsequent removal of the mask structure. As a practical matter, increased protection cannot be achieved by mere increase of mask thickness which may compromise lithographic exposures and/or chemical processes as well as mask removal.

Paragraph 18:

Referring now to Figures 3 - 9, a first preferred embodiment of the invention will now be discussed. This embodiment exploits a class of materials containing carbon, silicon and hydrogen with optical properties suitable for use as an anti-reflective coating (ARC) in optical lithographic processes and generically referred to as tunable, etch-resistant anti-reflective coating or TERA. These materials, especially when deposited by chemical vapor deposition (CVD) are generally more chemically inert than resists or other semiconductor materials as alluded to above but, as the inventors have discovered, can be oxidized

or, more generally, converted or hydrated with a dry chamber plasma process and subsequently removed by a wet etch using ~~hydrofluoric acid~~ hydrogen fluoride (HF) in a hygroscopic fluid material, preferably an organic solvent such as ethylene glycol or an inorganic acid such as sulfuric acid (H_2SO_4) in a two-step process with extremely high selectivity to underlying layers such as silicon, polysilicon, silicon nitride and oxides of silicon or other materials (a property not exhibited by other known ARC materials) while being affected very little, if at all, by other processes and etchants. By the same token, these materials can also be patterned using an extremely thin layer of resist which can be lithographically patterned at high resolution and very small minimum feature size well below 100 nm using the same wet etch process. Therefore, TERA material can be used to provide a robust, high resolution hard mask of non-critical and potentially small thickness and with little complication of processes otherwise required for manufacture of a given integrated circuit design.

Paragraph 0022

The ability of converted TERA to be etched with HF in an organic or hygroscopic solvent derives principally from the conversion/hydration process described above in which OH^- groups are incorporated into the TERA material and provides water as a by-product of the etching process. This evolved water allows the local dissociation of HF to cause etching of the TERA film selectively to other films on the wafer since the evolved water will be rapidly bound by the organic or hygroscopic solvent which is preferably abundant in the mixture used for etching TERA as the evolved water diffuses into the etching mixture. (Statistically, a vanishingly small amount of dissociation of HF will be present even when water is

not present or otherwise bound by other materials such as an organic or hygroscopic solvent. Accordingly, a non-zero amount of etching activity of HF will ~~occurs~~ occur at the surface of the films (including TERA) on the wafer; allowing significant etching to proceed when water is evolved but effectively halting the etching process when water is not produced by the etching process or bound by the relative abundance of organic/hygroscopic material.) For example, ratios of 125:1 and 250:1 of ethylene glycol (a principal component of automotive anti-freeze) to HF has been found suitable for practice of the invention but such ratios should not be considered as limits for the process since the only necessary condition is that the organic or hygroscopic solvent be able to scavenge the amount of water which is evolved. This particular etching mixture is referred to as HF/EG. The temperature of the process is similarly non-critical and the selective TERA etching process has been successfully carried out over a temperature range of 65°C to 90°C with a preferred temperature of about 75°C but, again, these temperatures should not be considered as limits for the successful practice of the process.